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W. H. DONALDSON & W. N. MOORE.

BED BOTTOM.

APPLICATION FILED JULY 18, 1906.

Fig. 1.

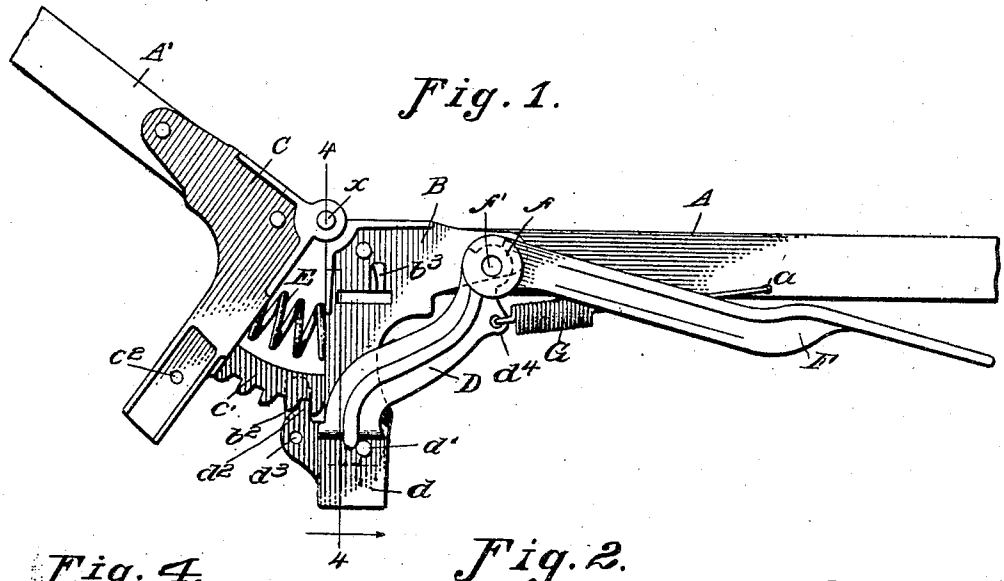

Fig. 4.

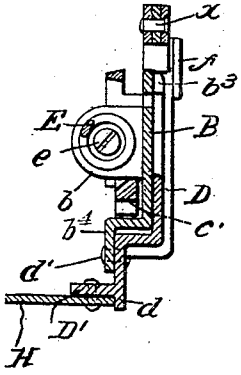

Fig. 2.

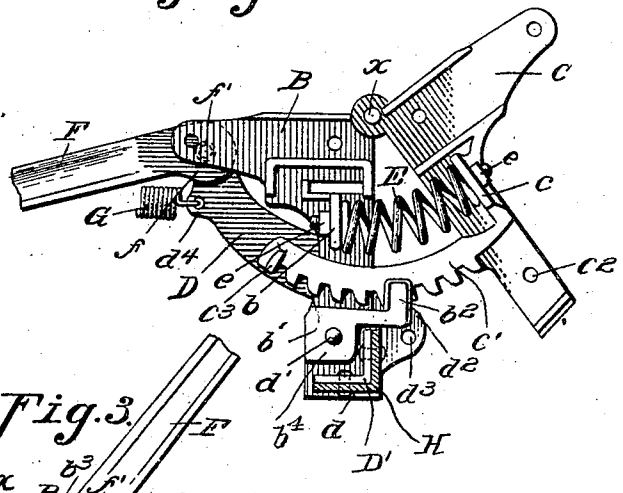

Fig. 3.

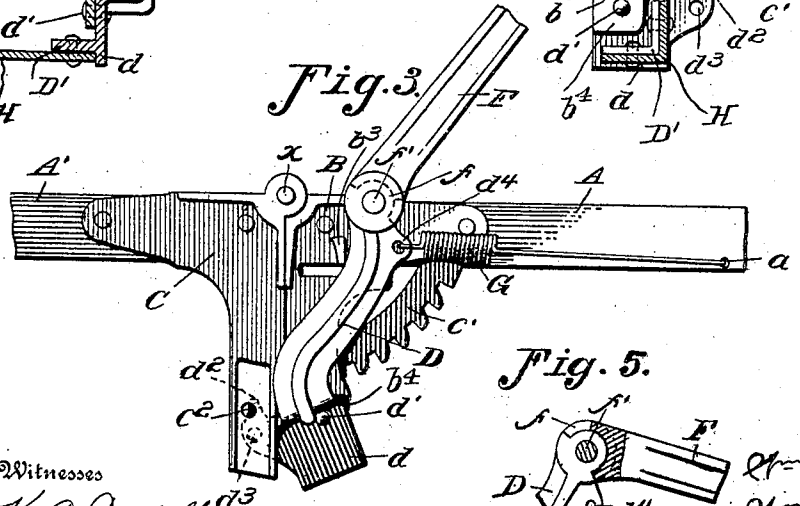

Fig. 5.

Witnesses

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BED-BOTTOM.

No. 838,697. Specification of Letters Patent. Patented Dec. 18, 1906.

Application filed July 18, 1906. Serial No. 326,699.

To all whom it may concern:

Be it known that we, WILLIAM H. DONALDSON and WILLIAM N. MOORE, citizens of the United States, and residents of Joliet, in the county of Will and State of Illinois, have invented a certain new and useful Improvement in Bed-Bottoms, of which the following is a specification.

This invention relates to improvements in bed-bottoms of that class which are constructed of two sections hinged together for the purpose of enabling the head-section to be swung up, so as to permit the occupant of the bed to recline upon it, as upon a couch, bed-bottoms of this kind being particularly suitable for invalids' use and being sometimes referred to as "reclining" or "invalid" beds.

The object of the invention is to provide an improved construction in bed-bottoms of this character in which the weight of the swinging or head section is so perfectly counterbalanced by springs that its raising and lowering can be accomplished with almost no exertion and in which the sections are locked in the desired position of adjustment by means of a lever device having a handle portion capable of projecting upwardly into convenient reach of the occupant of the bed, but arranged to drop down out of the way when not in use. This will be more fully understood from the following description of the construction illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the hinged connected portions of a bed-bottom embodying our invention, the head-section being shown as swung up into an inclined position. Fig. 2 is an inside elevation of one of the hinged joints detached from the rest of the bed-bottom frame. Fig. 3 is a view similar to Fig. 1, but showing the head-section dropped into the horizontal plane of the foot-section. Fig. 4 is a sectional detail taken on line 4 4 of Fig. 1. Fig. 5 is a sectional detail of the pivot or rule joint connecting the handle to the locking-lever.

In said drawings, A designates one of the side rails of the main or foot section of the bed-bottom frame, and A′ one of the side rails of the swinging or head section thereof, these sections being ordinarily of some suitable spring-mattress construction, in which, for example, a suitable woven-wire spring is provided as the surface of the bed-bottom.

B designates an angle-iron suitably riveted or otherwise rigidly secured to the inner end of the side bar A, and C an angle-iron similarly secured to the adjacent inner end of the side bar A′, and these two angle-irons are hinged together by a horizontal pivot-bolt x, so that when the side bars of the frame are in horizontal alinement the two depending arms of the angle-irons will lie closely together and in contact along their adjacent vertical edges.

A coiled spring E, whose tendency is to expand, is inserted between the angle-irons B and C in such manner that they tend to overcome the weight of the head-section and swing it upwardly about the hinged connection between the angle-irons, such spring being herein shown as applied between lugs b and c, respectively, of the angle-irons and as secured in place by bolts and nuts e, by which its ends are clamped to said lugs. The action of the springs E (one on each side of the bed-bottom) is to so nearly counterbalance the weight of the head-section as to enable it to be readily swung up or down into any desired position of adjustment, and to enable it to be locked in any such positions the angle-iron C is provided with an arc-shaped ratchet or rack bar C′ and the angle-iron B with a locking-lever D, adapted to engage with any one of the teeth of the rack. As herein shown, the rack C′ is made integral with the angle-iron C, both angles being in practice made of malleable castings, and it extends and slides between the inner face of the depending arm of the angle B and a guide-lug b^2, which extends laterally and upwardly, Fig. 2, from the inturned lower end b^4 of said depending arm of the angle B, Fig. 4. A lug c^3 on the extreme end of the rack-bar C′ is adapted for contact with the guide-lug b^2, so as to act as a stop to limit the movement of the head-section to approximately ninety degrees.

The locking-lever D is shown as pivotally attached to the outside of the extreme lower end portion b^4 of the angle B by a pivot-bolt b', Figs. 1, 2, and 4, and the lever is formed with its lower pawl portion d^2 adapted to enter between any two teeth of the rack-bar when the lever is swung down into locking position, as shown in Figs. 1 and 2. A suitable spring G is applied to normally maintain the lever D in this locking position, and the body of the lever when in this position is

located wholly beneath the upper surface of the bed-bottom, so that it does not offer any obstruction at the surface of the bed. At the same time the lever is provided with a handle-section F, that is secured to its body portion by a pivotal or rule joint ff', which enables the handle to drop down out of the way when not in use, while rendering it capable of being swung up above the bed-bottom into convenient reach of the occupant of the bed when the locking-lever is to be released. The lifting of this loose handle-section itself requires no exertion, and when raised, so that it forms an effective extension of the lever proper, the shoulders of its rule-joint interlock and cause the handle and body portion to form, in effect, a long lever upon which a very slight pull will suffice to overcome the friction and tension of the spring G and release the lock, whereupon the head-section may readily be readjusted. A stop b^3 on the outer face of the casting B serves as a stop to prevent undue travel of the lever in its unlocking motion, and registering holes d^3 and c^2 in the lower portions of the locking-lever and depending arm of the angle C, respectively, enable the locking-lever to be itself locked in place, so as to prevent upward movement of the head-section when the latter is once completely depressed, as in Fig. 3, the locking-lever dropped, and a nail or bolt thrust through said registering holes, this double lock being particularly useful during the handling and shipping of the bed-bottom and when the bed-bottom is to be used only in its flat position and no angular adjustment is for the time being deemed desirable. The position of the parts shown in Fig. 3 is that which obtains when the head-section is completely lowered, but before the locking-lever D has dropped back into its locking position after the lowering operation or after said lever has been pulled back from its locking position preliminary to the lifting of the head-section.

In practice the hinged joint illustrated will be understood to be duplicated on the opposite sides of the bed-bottom or mattress-frame, and for convenience the complete lifting-lever, with the pivoted handle-section F, will also be provided on each side as a part of the hinged joint; but the two levers will preferably be connected rigidly in some manner, as by an angle-iron H, extending across beneath the bed-bottom and riveted at each end to an L-shaped lug D', formed on the inner face of the lower extremity d of each locking-lever. This connection will enable the lock on both sides of the bed-bottom to be released by the manipulation of the handle on either side, as will be obvious.

In the use of the bed-bottom thus described the weight of the head-section will be practically relieved by the spring E, as stated, and the section may thus be swung up or down into any desired position of adjustment either by the occupant of the bed or by a person outside of the bed whenever the locking-lever is released by means of the handle F, and when the desired position of adjustment is reached said lever will automatically reëngage with the rack and restore the lock under the tension of the spring C. If the weight of the occupant of the bed is upon it and it is desired to lower the head of the bed, it needs only that the locking-lever shall be swung loose, when the head-section will sink easily and naturally downward into the horizontal position shown in Fig. 3 without any further manipulation and without noise or jar.

We claim as our invention—

1. A bed-bottom having a frame composed of head and foot sections hinged together, and interposed springs tending to swing the head-section upwardly about its hinged connection with the foot-section, a lever-controlled device for locking the two sections in adjusted relation, and a handle pivoted to the lever and having a limited lost motion with respect thereto, said handle dropping below the surface of the mattress when not in use, substantially as and for the purpose set forth.

2. A bed-bottom having a frame composed of head and foot sections hinged together and each provided with rigid depending arms adjacent to the hinge, springs interposed between said depending arms and tending to swing the head-section upwardly about its hinged connection with the foot-section, and means for locking the two sections in adjusted relation, substantially as and for the purpose set forth.

3. A bed-bottom having a frame composed of head and foot sections hinged together and provided with depending arms, springs interposed between said arms tending to swing the head-section upwardly about its hinged connection with the foot-section, a locking-lever pivoted to the depending arms of one section and arranged to interlock with a toothed portion of the other section, said lever terminating below the surface of the bed, and a handle extension on the lever movably connected therewith to enable it to drop out of the way when not in use, substantially as and for the purpose set forth.

4. In a device of the class set forth, the combination of two bracket irons or members hinged together at their upper corners and each having a depending arm and being adapted for attachment to the side rail of a bed-bottom, a spring connecting the brackets and tending to separate their depending arms for locking said members in adjusted position, substantially as and for the purpose set forth.

5. In combination with the main side rail and the head-section side rail, of a pair of brackets carried thereby and hinged together

at their upper adjacent corners, each bracket being provided with a depending arm, a spring tending to separate said arms and thus elevate the head-section, a rack-bar carried by one of the members and passing alongside the other member, and a pawl-carrying device carried by this latter member, substantially as and for the purpose set forth.

6. In combination with a pair of bracket members hinged together at their upper ends and attached to the respective side rails of the mattress-frame sections, a rack-bar carried by the bracket attached to the head-section and having downwardly-facing teeth and working behind the depending part of the other bracket, a pawl-carrying lever pivoted to this latter bracket below the rack, and a spring for normally holding said pawl up into engagement with the teeth of the rack, substantially as set forth.

7. In combination, a pair of brackets pivoted together and adapted for attachment to the side rails of the main section and the head-section of a sectional mattress-frame, a spring tending to normally elevate the head-section, a rack-bar carried by the head-section and extending rearwardly, a pawl-carrying lever pivoted to the other bracket and carrying a pawl normally engaging said rack, substantially as set forth.

8. In combination, a pair of brackets hinged together and adapted for attachment to the side rails of a sectional mattress-frame and each having a depending arm, an expansive spring connecting the depending arms, a rack carried by one of the depending arms, a pivoted pawl-carrying lever carried by the other depending arm and extending upwardly, and an extension or handle-piece pivoted to the upper end of this lever and having a limited upward movement and a normal downward movement independently of the lever, whereby this extension or handle will normally swing down out of the way, substantially as set forth.

In testimony that we claim the foregoing as our invention we affix our signatures, in presence of two subscribing witnesses, this 10th day of July, A. D. 1906.

WILLIAM H. DONALDSON.
WILLIAM N. MOORE.

Witnesses:
HENRY D. JOHNSON,
FRED W. PHELPS.